

ABSTRACT OF THE DISCLOSURE

2 This invention is directed to a novel process for making Group II metal
3 carbonated, overbased Mannich condensation products of alkylphenols,
4 which process uses ethylene carbonate as both a source of carbon dioxide
5 and ethylene glycol. In particular, under the reaction conditions using
6 ethylene carbonate in the present invention, carbonation and overbasing
7 Mannich condensation products of alkylphenols is possible while at the same
8 time the viscosity of the carbonated, overbased Mannich condensation
9 products of alkylphenols remains within acceptable levels, typically under
10 1000 cSt at 100°C. The present invention is also directed to carbonation of
11 Mannich condensation products of alkylphenols using a C₂-C₆ alkaline glycol
12 and carbon dioxide. The present invention is also directed to a detergent-
13 dispersant antioxidant additive composition comprising Group II metal
14 carbonated, overbased Mannich condensation products of alkylphenols,
15 wherein the Group II metal carbonated, overbased Mannich condensation
16 products of alkylphenols have a CO₂ to Ca ratio of at least 0.01.